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*On Agricultural Statistics.* By SAMUEL PAULL, Esq.

[Read before the Statistical Society of London, Monday, 20th February, 1854.]

ABOUT forty years ago I took a subordinate professional share in a tedious lawsuit respecting tithes over a large parish. I represented the clergyman; and as, when I took up the subject, it had been in question for several years, it will be readily imagined that a great deal of bad feeling raged in the litigants. My business was to obtain, as closely as I could, parish corn statistics; but from the farmers I could get no information whatever, and from other parties none at all satisfactory to our counsel in the suit. Still I was told by my superiors in the business that I must obtain the information they needed, and, in this extremity, I cast about in my mind for means to accomplish the object in view. It will be seen that I had to get important information without putting a question to any occupier of land in the parish, or indeed to any other person, and I now proceed to explain in what way I solved this knotty statistical problem. I had a map and terrier, or particular, of the parish lands, separated into the various holdings of the farmers. It may be necessary to premise that in every parish there is a similar terrier used for the purpose of making parish rates, and for other parish matters. Having, then, this map and terrier at my command, I soon saw that if, by any stealthy means, by day or by night, I or any individual well acquainted with the parish could walk over the several farms at proper seasons of the year, noting on the maps and in the terrier the several crops in the several fields, there would be no necessity for any communication with the farmers in respect of their corn and other crops; we should obtain the required information by the means now indicated; and as the parish terrier gave the statute acreage or computed area of each field, we should ascertain the total quantity of land in every farm, under crops of all sorts.

By this simple means, we got all the corn statistics needed by our solicitor and counsel.

The very learned solicitor who conducted this important tithe case took note of my efforts to assist him in the management of it, and as he had a very high professional position, and was much employed in tithe questions, where law, learning, and close investigation were required, it was his pleasure to have me about him when engaged from time to time on knotty points; and in this and other ways I came to form a deliberate judgment on the question of parish, corn, and vegetable statistics, and to possess a quiet and safe means for obtaining them, as well as to conceive plans and arrangements of public utility, supplementary to corn statistics. To some of them I may have occasion presently to refer. My immediate object is to apply my personal experiences to the collection of the statistics of agriculture on a larger scale.

In a statistical sense, a nation is only an aggregate of parishes, as parishes are of farms; so that, if we have a sound means of obtaining corn statistics for one parish we have a sound means of obtaining the corn statistics of all of them. Let us look at this in detail. We have a terrier or particular of every parish, with or without maps,

and there are in every parish some individuals distinguished for local knowledge in respect of the parish lands—men who, on looking at the particular, can recognise every field and its locality. Now, at given times of the year, that is to say, when the lands are bearing their crops, a person so qualified could walk over the parish, map and terrier in hand, and mark every field with its visible crop; and while this individual was so employed, the parish schoolmaster, or some other competent scribe, could prepare a copy of the parish terrier, giving columns for every sort of grain and vegetable crop. Then these two men, their mutual labour being so far advanced, should introduce into its proper column the area of each field, and obtain a correct total for every column. This done, I submit that they would have obtained safe parish statistics, in so far as acreage and produce are concerned.

But here an important question arises as to the ability of the individuals whom I thus propose to employ to furnish the requisite information. In answering this question, we must not allow ourselves to be prejudiced by the personal appearance of the agriculturist or agricultural labourer; we must not allow the coarseness of his manners, if coarse they be, to blind us to his intelligence—to the faculty always in him of declaring the average produce per acre of his parish for any kind of grain or vegetable, and the consequence of unusually good or bad seasons, as they affect the average produce. After a life-long acquaintance with these men, I do not hesitate to assert that this instinctive knowledge of theirs would be justified by elaborate inquiries on the subject of parish produce. This fine faculty then being in every parish, we need not go beyond its limits to find men capable of declaring at any point of the time that a particular crop takes to reach maturity what the result will be in respect of production, both absolutely and with reference to the average produce; and were such men furnished by Government with skeleton printed papers, comprising appropriate leading questions, with clear directions how to fill them up, I submit that by these simple means our Government would have year by year safe corn and vegetable statistics of produce from every parish.

The terriers or particulars already referred to, together with the acreage and parish produce-papers now briefly noticed, having been collected from all the parishes in the kingdom, the Government, by the assistance of official men in the office of the Board of Trade, would ascertain the number of acres under grain and green crops in each parish, together with the aggregate produce of each crop; and by a simple process of addition, the whole quantity of land under every kind of crop, and the entire produce of the nation, as one large farm.

Having now placed before the Society these simple suggestions for collecting the statistics of agriculture, as starting points for discussion, I proceed to offer a few observations bearing upon other methods of procedure which have been suggested or put in practice. I must premise that up to the time of the destruction of the corn laws, and until a short time back, our agriculturists, as a body, were as little disposed to answer questions for statistical purposes as they were of old for tithe purposes. Novelties generally engender distrust, and that produces hesitation, and hesi-

tation, if not met by the soundest discretion, leads to ill temper; and it is a serious question with me whether our English agriculturists are now, or are likely to be for some time to come, in such an improved condition of mind as to be able to value agricultural statistics as a national necessity—as a subject having important bearings on the importation of corn, and that importation reflecting its consequences on our home corn market, and consequently to volunteer, or willingly to afford, information leading to the results we have already seen how to reach by other means. It is no light thing to ask tens of thousands of men to disclose their private affairs for the benefit of the nation, before they have been made clearly and fully to see their own personal advantage in responding to such inquiries. The suggestions which I have made for obtaining agricultural statistics without questioning our farmers, derive additional importance from this consideration of what is due to the sensitiveness of our agriculturists in respect of their private affairs, a sensitiveness which gives additional importance to the fact so honourable to them, that the Government has entirely trusted to their generous disclosures for the agricultural statistics of three counties in Scotland.

I shall presently offer some suggestions as to what our agriculturists ought to be encouraged to do for themselves before they shall be invited to unfold their personal affairs for the good of the public. In the meantime, I will bring concisely under the notice of the Society the means which have been used for obtaining the corn statistics of a few counties, as well as the other means which have been publicly recommended for obtaining corn statistics for the whole nation.

In order to duly estimate the value of the Government measures which have been adopted for the collection of corn statistics, and the other means which have been suggested by individuals, one important question should be borne constantly in mind. These statistics having been acquired by any given means, what amount of confidence will be awarded them in the business transactions of the nation? The answer to this question is the test of the practical soundness of all statistical plans. An assertion contained in a letter on agricultural statistics, which appeared in the “Times” newspaper of the 28th of last October, will aid us in forming a sound opinion on this vital point. The letter was signed “A Farmer,” and was evidently written by a thoughtful man. He is of opinion that our farmers would not make accurate returns in answer to official inquiries, because “my acquaintance with the class leads me to think that an innate jealousy of letting their nearest neighbours know what they are doing would militate very materially against their rendering accurate returns.” Here, then, we have the Government, on the one hand, asking statistical information from our farmers, and putting faith in their answers, and, on the other hand, one who professes to know the minds of the farmers, declaring that no dependence can be placed on a farmer’s replies to statistical inquiries. Now the consideration which makes the question before us so important is, not what statesmen think on the point, or what “A Farmer” thinks on it, but what the men think on it who may wish to govern the corn market in defi-

ance of statistical returns indicating national corn necessities, and who may, for the purpose, treasure "A Farmer's" letter in the "Times" as a foundation on which to construct the permanent assertion that the corn returns had been falsified through the impulsive innate jealousy of our farmers. Should our bankers and merchants believe such assertions as this, there would be an end of the value of agricultural statistics for mercantile purposes. No men in the nation ask more earnestly for these statistics than our bankers and merchants, but then they must have them utterly apart from doubt or dread.

I will now bring under your notice the plan adopted by Government for obtaining agricultural statistics for three counties in Scotland, and which the farmers in those counties have cheerfully and practically accepted. Mr. Hall Maxwell, the Government Agent, in forwarding the returns from the counties of Roxburgh, Haddington, and Sutherland, to the Board of Trade, thus wrote:—

"The machinery employed in obtaining the estimate was simple, and proved efficient. In every district there was a committee composed of the enumerator and experienced farmers, selected from and representing each of the associated parishes. The nature and object of their services were explained in a circular addressed by me to the members of these committees before harvest. Their attention was called to the standing crops, and they were requested to institute inquiry and to obtain information within their respective parishes. Their observations were continued through the progress of the harvest, and at a late period, when experiments in weighing and threshing had been made, the committees were convened by their enumerators, the views of the members were compared and considered, and a statement was prepared and forwarded to me showing the average acreage produce of each parish in bushels of grain and tons of roots.

"It is my duty to report to my lords that I experienced in every district the utmost anxiety to forward the object in view in a thoroughly faithful manner. The communications I have had directly with the enumerators warrant me in making this statement as to them, and they concur in representing the alacrity and good feeling with which the members of their respective committees co-operated with them.

"From this it will be observed that the returns are an estimate prepared by experienced farmers from each parish under the guidance of an enumerator for a district, the number of acres under each crop having been previously ascertained from printed schedules sent to every occupier of land. The representative farmer from each parish and the enumerator, in consultation, then put down under the various heads what, from inquiry and observation, they believed to be the average produce of each parish per acre, and that multiplied by the acres under various crops gives the result obtained.

"The cost of obtaining these returns is not yet before us, but at the estimate of 800*l.*, which we believe was the sum authorized by Government for the experiment; the cost of obtaining similar returns for Great Britain on the same principle would amount to 80,000*l.* We believe that a much less expensive and more accurate system

could be devised, and it is very doubtful whether the plan of the Highland Society, however successful in Scotland, will be found at all practicable in the English counties where the land is so much more subdivided and intermixed."

This, then, is the Highland Society's scheme as practically sanctioned by Government.

The above quotations appeared in the "Times" newspaper of the 11th of December ultimo, but on the 17th of last September the letter already brought under your consideration appeared in the same paper from the hand of "A Farmer," in which he argues in favour of these corn statistics, affirming that, in order to be of any use these returns must be made by the producer alone. But shortly afterwards Mr. Cooke published a letter on agricultural statistics, addressed to the President of the Board of Trade, advocating the employment of district surveyors instead of the "producers." This induced "A Farmer" to reconsider his suggestions.

The pith of his letter inserted in the "Times" of October 28th, after his consideration of Mr. Cooke's suggestions, will be found in the following quotations:—

"What Mr. Cooke says about acreage farms, if I understand him right, would be of no practical use; the circumstances affecting different farms vary every year; different lands are variously affected by seasons and many other circumstances well known to practical farmers. There is no other way of obtaining accurate information such as would be of any practical use, than by ascertaining what each inclosure is likely to supply for the current year. The only question is, whether this information should be supplied by the occupier or through the medium of a district surveyor; either would suffice if it was well done; but I am inclined to think that the system of district surveyors would be most to be relied upon, as he would make it his business, while the occupier might be apt to think it a trouble imposed upon him, and that as long as he made the return it would not matter whether it was accurate or not." And then follows the sentence before quoted: "my acquaintance with the class leads me to think that an innate jealousy of letting even their nearest neighbours know what they are doing would militate very materially against their rendering accurate returns."

"With respect to the power of obtaining the contents of each separate inclosure, without incurring the expense of a new survey, I will merely mention that no land valuer finds any difficulty when he is employed to value an estate in obtaining the information which he must know to value the acreage."

In the extracts which I have now laid before you I have literally produced for your consideration all the rational schemes I have ever seen to meet our imminent statistical necessities, for, as is well known, we really cannot say within 10,000,000 quarters or so what quantity of grain we produce in this kingdom.

As to Mr. Cooke's scheme, I shall, I hope, be pardoned for quoting a paragraph from the "Daily News," extracted from a leader on statistics, which appeared on November 11th.

"The newest proposition on this head is that of Mr. Cooke, in the just published letters to the President of the Board of Trade. He

proposes that in each county a certain number of parishes should be carefully selected as representing the diversities of soil, culture, and climate existing throughout the county, and that an unintermitting observation of these parishes should go on throughout the year; a frequent computation of the whole being made and published from the sample. We need not now point out that the one thing to be established is, that any selection of parishes can be representative of the whole. It is possible that an average of soil may be obtained, and that an upland district here, a lowland district there, and a maritime or alluvial portion elsewhere, may be indicated as pretty fairly representing  $\frac{1}{4}$ ,  $\frac{1}{6}$ , or  $\frac{1}{10}$  of the county, (though our parish bounds have nothing to do with considerations of soil and climate,) but what is to be done about differences of agricultural skill? How are we to get at any average, or be sure of any sample of farming ability? To us, we acknowledge, this part of the business seems hopeless; so long as a good farmer can get more produce out of bad land than a bad farmer can get out of rich land, we do not see how the sample principle can be brought into application at all. It is not even true yet, however it may be hereafter, that the example of profitable farming spreads. Nothing is more common than to see the field of the sluggard, lying between the little hills that are re-joining on every side, in fertility and freshness. If, however, there are many who agree with Mr. Cooke about local averages of farming skill, by all means let them try his proposed experiment. There are already three English counties from which full returns have just been obtained. It must be comparatively easy to obtain next year's statistics from these three counties; let both methods, that of total and that of sample returns be tried, and we shall have, in the comparison of their results, something like evidence of how the easier plan would answer. If we admitted Mr. Cooke's estimate of the cost of a total survey (that it would cost about 300,000*l.* a-year,) we might be nearer to agreeing with him about a substitute, but we are far from believing that when general and regular agricultural surveys are permanently instituted the cost need be anything like this. The fees or salaries of existing land valuers, with a contingent business, are not fair data from which to calculate the expenses of an organized and perpetual survey.

"As to the agency, it is clear that whatever we may at last decide upon, we must not apply to the occupiers of the land. Putting aside all doubts springing from moral grounds, there can be little hope of reliable returns from men so various in capacity, in education, and in tendencies of mind; so busy, too, probably so unwilling, and certainly so irresponsible. Their relations with their landlords do not admit of their being our statistical agents, nor does their daily business; and it will be some time before they, as a body, become aware of the advantage to themselves of what we are seeking to obtain. We must have a good agency to begin with, probably of district surveyors, (or poor law officials,) who might, however, unite a good deal of other business with that of preparing their statistical return. The work will probably be expensive at first, and if it is we ought not to grudge it. It is not conceivable that it could cost so much as the country loses by any one year of groping tillage, uncon-

nected procedure, and random production, to say nothing of the losses from needless panics on occasions, and from the timorous uncertainty which beset us in one form or another in every day of the year."

With the exception of an admirable letter on statistics, addressed by Lord Ashburton to the Statistical Committee of the Alresford Union, and a letter addressed by Mr. Pusey to Lord Ashburton on statistics, I really have nothing more to put before the Society worthy of notice; and as the letters of Lord Ashburton and Mr. Pusey relate to nice statistical details, and not to fundamental plans for obtaining them, I do not touch upon them on this occasion.

We have, therefore, three plans before us:—1. That of which I had personal experience so many years since, and which is sanctioned by my judgment in mature years; 2. That of the Highland Society adopted by Government; and 3. That proposed by Mr. Cooke and timidly approved by "A Farmer," who evidently finds a difficulty in deciding the question whether the returns should be made by "the producers or district surveyors." My plan would cost, perhaps, 50,000*l.* a-year, the Highland Society's plan about 80,000*l.* and Mr. Cooke's, as he says, about 300,000*l.* a-year.

Whatever the plan which may be ultimately adopted, we must not hope to accomplish all we could desire at first, for if we did, we should certainly be disappointed. Indeed, it is quite possible that were we very successful at the onset, our cause would be injured rather than benefited. For there is as fixed a law for governing the march of great purposes as there is for the growth and development of human beings. A child must learn to walk well before it can master all the other paces and movements necessary for the purposes of its active life.

The object which the statesman has in view in adopting measures for obtaining corn statistics is simply to learn how much food we ought to import in order to feed our population. We can only hope to be able to return a complete answer to this question when we shall have profited by the education of experience in the practical working of the statistical scheme which may have been selected. But I am decidedly of opinion that in order to obtain a sound answer to the question, how much food must we import to feed our people? we should all avoid flinging ourselves on the confiding courtesy of the farmers, and the employment of professional men whom we should have to pay heavily for their unnecessary services—services of no advantage to anybody but themselves, and very likely to give serious annoyance to the land tenants of the kingdom. The employment of agricultural labourers and schoolmasters for the collection of parish statistics seems to me to have been a sound and safe plan for the purposes which I had originally to accomplish, and I would now make use of it for the larger purpose of collecting the statistics of agriculture. If it be objected that such an arrangement is scarcely sound and safe for a national purpose, and that it is even below the dignity of such a vast and important undertaking, I would reply that if such men are truly equal to such duties for a parish, as my own experience proves that they unquestionably are, it would be wrong to go far above them for our agents. For affairs of this character I am convinced that an agent needs no professional acquirement whatever.

All that he requires is a very ordinary commercial education, some local knowledge, sound common sense, and a good moral character. All beyond this would, for such a business, be literally a demerit.

I am old on this subject of agricultural statistics. Many years ago I travelled much about the country for the purpose of intercourse with agriculturists on it and other kindred matters, and finding them, for the most part, either doubting the possibility of obtaining sound statistical returns for the nation, or fearful that an inquisitorial agency would be necessary for the collection of them, I at once saw that, to substantially serve this great cause, I must put forward for it the agency, or some such agency, as I had used for tithe statistics, and roundly protest against the employment of all agents at all likely to rouse the just suspicions of our farmers. I saw, too, that by boldly fixing the attention of statesmen on a simple agency for these statistics I might, happily, prepare them for the rejection of such complicated and questionable agencies as would, in all probability, come before them for consideration when the subject of agricultural statistics should become popular, and engage the pens of other men.

If I am entitled to any praise at all from your Society it is chiefly for this forecast. I have opened this paper with a statement of the simple means I used for the obtaining tithe statistics in the hope that, in a consideration of them, your judgments will discard more elaborate and expensive plans. I am happy in the belief that statesmen and our best statistical thinkers have arrived at the conclusion that professional or any other expensive agency is not necessary for this important but yet very simple business. For myself, my simple wish is this, that Government would give us, for the nation, a plan as simple in its agency as that lately tried in Scotland, or as that now in course of trial in English counties, with this proviso, however: that whatever scheme for the collection of agricultural statistics shall be finally adopted by Government, it will have been crudely concocted if it do not, in practice, affirmatively answer this question—does it count every acre of land under tillage through the kingdom? If it do not it will be unworthy the age in which we live, the sanction of statistical thinkers, and the funds of those who traverse the world for the food needed by our population. My old tithe plan fully meets this requirement, and all plans which do not will be, in practice, delusive.

It would seem that our statistical friends in Scotland feel that the plan they have adopted for the collection of statistics is not altogether worthy of our acceptance. For my own part I do not admit the force of any of the objections urged against the farmers being employed as agents for these statistics. I know the men too well to feel any misgiving with regard to them, but I feel that objections would be constantly advanced should the farmers be so engaged as agents, and that mercantile confidence in the accuracy of the returns would be destroyed.

It has been suggested by Mr. Cooke, "A Farmer," and others, that district surveyors should be employed as agents for collecting agricultural statistics with contingent business, that is to say, with valuation and agency practice in their districts. This arrangement,

I know, would be highly disagreeable to the farmers generally; they would feel that they themselves and their affairs were continually under the eye of a man who might, at any time, be employed by their landlord as a valuer. The inconvenience of such an arrangement may be illustrated by the case of a house-tenant subject to perpetual visits from the agent of his landlord, who, without his consent, and frequently without his knowledge, might enter every room in the house, and by these covert means become acquainted with the tenant's most private habits, and might base on this surreptitious information very unpalatable advice to the landlord respecting an improved rental.

Seeing that statesmen have of late confided in the honour of the agriculturists of Scotland for true statistical returns, the English agriculturists may well object to have this class of statistical agents forced upon them.

Whatever may be the fate of the plans hitherto proposed for collecting agriculturist statistics, we may at least congratulate each other on the birth of agricultural statistics in Scotland, and on the prospects of their extension to the entire kingdom.

Before I conclude this paper I would ask the serious attention of the Society to an important matter which seems naturally to grow out of the consideration of agricultural statistics. I mean the education of our agriculturists. With the exception of that portion of it immediately under the control of our agriculturists, the press of the kingdom has been, and is, in the constant habit of representing our agriculturists as an ignorant, prejudiced, and subservient body of men, and yet scarcely any efforts have been made to enlighten them. No public man has, I believe, up to this hour, so familiarly and freely expounded the fundamental purposes of statistics and their direct reference to every farmer's business concerns, as to convince them of their utility and necessity.

With the exception of our agricultural societies, the agriculturists have no means for acquiring knowledge at all; and if the great majority of them are ignorant and prejudiced, it is because these societies are not adapted to meet their necessities.

Having given much attention to this subject for many years, I conceive that the best educational means we possess would be found to be the agents for agricultural statistics; and I should propose, with the consent of the Government, to make the statistical agent in every parish an agent for the diffusion of information. He might also become the instrument of establishing local institutes, in which, by means of lectures and familiar oral instruction, useful information would be imparted to all the occupiers and cultivators of the soil. But as plans for the establishment and support of educational institutes adapted to the instruction of the rural population, would scarcely form a proper subject for the consideration of the Statistical Society, I must pass over what I might have said on this interesting subject, and conclude by expressing my hope that I have not exhausted the patience or wasted the time of the Statistical Society.

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